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(Continued on last page)

Personnel

MAY, 1933

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The Technique of Measuring Employee Attitudes*

By Arthur W. Kornhauser, *Associate Professor of Psychology, University of Chicago*

MANAGEMENT'S interest in employee attitudes arises from the belief that attitudes are important determinants of efficiency. That belief is amply supported by casual observations as well as by the more careful attitude studies of recent years. Favorable feelings make for efficiency; antagonistic attitudes lead to unnecessary waste, friction in getting work done, poor quality workmanship, withheld effort, increased costs. This relationship is a foundation principle of industrial personnel philosophy. Improvement of attitudes—heightening of morale—constitutes a prime objective of personnel management. It is not, however, that favorable attitudes are the ultimate goal; they are prized because they mean effective work and reduced labor costs.

Employee attitudes have direct human significance, however, along with their implications for production. Viewed socially, industry is to be judged not only by the skyscrapers, loaves of bread, and profits it produces but also by what it does to its working people. Workers' attitudes, though never listed in our census of manufactures, constitute a most significant industrial product. Students of labor can ill afford to neglect the question: What does work bring in the way of personal adjustment and feeling of well-being? What does it mean in units of satisfaction or of discontent? Studies of employee attitudes have these questions to answer as well as the ones of more immediate practical concern to management.

An immense part of our industrial discontent is unnecessary. If management knows what its employees are really thinking and feeling, the sources of trouble can usually be greatly reduced in seriousness. Too often the workers' attitudes are guessed at—or ignored—or damned.

During the past few years a number of studies of employees attitudes have shown how this guess work may be eliminated. The studies take a significant step beyond ordinary casual observations and off-hand impressions. They attempt to analyze and measure attitudes by specially planned interview

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The object of the publications of the American Management Association is to place before the members ideas which it is hoped may prove interesting and informative, but the Association does not stand sponsor for views expressed by authors in articles issued in or as its publications.

and testing techniques. The studies have ranged from an intensive investigation in a Philadelphia railroad shop to large-scale inquiries at the Western Electric Company and in a number of important public utilities; from problems concerning women workers in a Wisconsin factory to employees of a metal-working plant in western Pennsylvania. The organizations studied include one of the largest soap factories, several machine shops, textile mills, and a metropolitan bank.

These studies have contributed both to our knowledge of how to measure attitudes and to our understanding of important causes and effects of employees' feelings. It has become clear that good and bad attitudes reflect the whole tangled network of industrial conditions on the one hand, and the varying amount of emotional stability, temperament, and intellectual equipment of workers on the other. Especially outstanding are such influences as insecurity of employment; the personalities and methods of supervisors; the intensity and routine character of the job; improper placement of workers; wages, hours, working conditions, and labor policies; home conditions and personal problems. Often one or two dominant sources of irritation color attitudes toward the entire work relationship. Workers may complain of bad working conditions when the real trouble is bad supervision.

How well are actual attitudes revealed in these studies? Can we measure how people really feel about their jobs? Certainly the obstacles are formidable. Skilled, sympathetic, sincere interviewing is required if employees are to talk frankly. The interviews and question blanks must be planned with extreme care and must eliminate personal bias as far as is humanly possible. Employees' statements must be interpreted in relation to one another and with reference to underlying causes of unrest. Moreover, employees must be fully convinced that the inquiry is honest, is in their own interests, and will harm none of them. Feelings of suspicion make the study worthless. Accordingly, few concerns—especially in these days of stress—can be advised to conduct such inquiries.

Under favorable conditions, however, studies of employee attitudes do perform valuable services, among them the following:

1. They give management a measure of how well it is doing its job of leadership, how well morale is being maintained. It is a rating of management's efficiency in personnel matters.
2. Attention is called to specific problems and sources of irritation that need attention—conditions of work, supervision, personal problems, etc. Often the employees have specific constructive suggestions to offer.
3. Workers are given an opportunity to unburden themselves—to get things off their chests and to feel that the company is really inter-

ested in them and their problems. The mere talking makes them feel better.

4. A mine of specific concrete cases is opened, to be used—anonymously—in instructing supervisors in better methods of dealing with their men.

Our particular interest here is with the techniques of analyzing and measuring attitudes. The term "attitude" is conveniently vague. The very fact that it has no clear-cut psychological definition lets it serve usefully to designate the varied reaction tendencies of a person—his readiness to respond in one direction or another. Thus we speak of attitudes of friendliness, resentment or antagonism, a critical attitude, a broad-minded attitude, or a capitalistic attitude. The attitudes may refer to particular persons and objects, or they may have less specific reference, for example, an attitude of friendliness toward all change, or an attitude of opposition to all incentive wage plans. In each instance, the attitude implies a predisposition toward action of a somewhat definite, but not highly specific, character. The pugnacious attitude is a tendency to fight or respond aggressively—but by means of a variety of specific actions. There is simply a "set" or direction for the behavior to follow. Usually, but not always, the attitude is charged with emotion; it is a matter of feelings. Moreover, the attitudes are for or against, with corresponding favorable or unfavorable feelings. When we speak of measuring attitudes, it is the degree of this positiveness or negativeness that we are seeking to determine. How strongly do employees favor a pension plan? How intensely do they resent the methods employed by their foreman? Is their attitude for or against the rate-setting department? Or, more generally, how high is morale in different departments or plants? How great is unrest or dissatisfaction?

There are many ways of trying to get at employee attitudes. And there are many and serious difficulties. We shall look at the several methods that have been used in industrial investigations and then raise some critical questions concerning these techniques.

All the methods for studying attitudes must perforce start with what people do and say. Attitudes themselves are not objectively observed facts; they are inferences, interpretations. Sometimes the inference is entirely safe. But there is usually considerable doubt. The results of an attitudes study are likely to depend largely on the methods of the investigation.

The first method to consider is the use of objective records. Why not go directly to the attitude effects with which management is concerned? That is, why not analyze labor turnover figures, output records, and behavior on the job? The answer is that we should. However, these studies will take us only a short way. High turnover figures, poor quality records, low output may indeed indicate unfavorable attitudes. But these are gross results. We must go back of them to learn how far causes other than

attitudes are involved and just what sorts of dissatisfaction are operative. To stop with objective records would be like taking mortality statistics and nothing more in studying problems of health.

In addition, one encounters serious difficulties in an attempt to find usable measures of individual output and job behavior. For vast numbers of jobs measurements of performance are impossible; in many other instances records have not been kept adequately. The figures are not readily comparable from job to job. Usually dozens of disturbing influences must be considered in interpreting the records when they are available. Nevertheless, studies of attitudes, to be of greatest value, should always utilize statistics of work performance and observations of behavior along with evidence collected by the usual procedures of attitude investigations.

The usual methods of surveying attitudes are verbal. They make use of what employees say or write. I shall break them into five classes.

1. The "Impressionistic" Method. This method is admirably illustrated by the work of Whiting Williams. It arrives at its interpretations on the basis of a thousand incidental observations of what men say, how they say it, what they do not say, how they look, how they work, and how they play. The method is not "scientific." It is subjective and informal; it tries to see things as a whole; to understand sympathetically; to get at the deeper feelings of men. Of course, we all use these scattered impressions and flashes of insight as a partial basis for attitude interpretations. The method, in that sense, is an indispensable supplement to all the more formal methods.

2. The Unguided Interview. This method is also somewhat informal. It is the method stressed by the psychoanalysts. In the industrial field it is most associated with the name of Elton Mayo and with the Western Electric Company's investigation. The essential spirit is: Let the employee talk. The interviewer is there to listen. What is wanted is anything that the worker feels is important. The interviewer asks no questions, does no guiding beyond encouraging the employee to continue with whatever is on his mind. Written notes are kept of everything of any consequence at all.

3. The Guided Interview. All degrees of guidance are possible, from none to the rigid following of a list of questions. The usual guided interview is intermediate. The interviewer may have a set of topics or questions to be covered, but in no regular order, with no set form of questioning, and with free opportunity for the employee to branch off into anything he pleases. Thus, for example, in a study made in the Kimberly-Clark Corporation a list of about fifty questions was compiled to serve as aids or reminders to the interviewer of what to look for. Full notes are kept in this method, including what the interviewer says and what the employee contributes even where this is not related to any questions on the list. More formal interview procedures are illustrated in Houser's investigation in sev-

eral public utility companies and in B. V. Moore's study of attitudes of a group of textile workers toward an employment guarantee plan. The latter asked fifteen set questions, many of them answerable by "yes" or "no." The former devised a system for grading the responses into five levels of favorableness or unfavorableness.

4. Question Blanks. This method owes most to the work of J. David Houser and his associates. It has also been used in a number of later studies. Usually the blank contains simple questions which can be answered "yes" or "no" in a way to reveal the employees' opinion about specific points. The questionnaires are given to groups of workers, with oral explanations, and are answered and returned at the time. Such blanks yield simple quantitative data showing the number of people declaring themselves satisfied or dissatisfied about various conditions and relationships. Responses to a number of questions bearing on one subject, such as supervision, may be combined to give a rating of favorableness of attitude. Simple lists of items to be checked are also included in some of the question blanks—for example, a list of job characteristics in which the employee indicates which he likes and which he dislikes. There are many other variations in form of question; some are ingenious and useful.

5. Scales for the Measuring of Particular Attitudes. The development of this technique is the special contribution of L. L. Thurstone. Application of his scaling methods in an industrial study has been made recently by R. S. Uhrbrock. A scale is constructed for attitudes toward one specified object—say, attitude toward the job. The scale consists of a number of statements of opinion—20 or 30 perhaps—ranging from ones extremely favorable to others extremely unfavorable. In measuring attitudes a person is merely asked to check the statements with which he agrees. From these responses a rating or score is readily computed which shows how fully the person stands for or against the matter in question. The refined techniques in scaling come in the statistical procedures for placing the statements along the scale like the inch-marks on a yardstick. The use of an attitude scale enables us to secure an accurate record of one attitude, such as favorableness of feeling toward the job as a whole. If we are interested in a number of more specific attitudes, separate scales are required. The scales are somewhat expensive to construct and a large set of them would be cumbersome to administer. But much may be said for the use of one scale, or two or three, supplemented by the more ordinary questionnaire and interview.

What are the problems and difficulties in the use of these methods? Five questions arise which call attention to certain of the problems and needs:

First of all, will employees cooperate? Will they talk? Unless they will, the attitude study had better stop before it begins. Without a favorable setting, no amount of refined and subtle technique will go far. Above

everything else in the study of workers' attitudes, I would emphasize the necessity for creating and maintaining conditions which make for frank and willing expression, with no fears of reprisals and no doubts that personal confidences will be absolutely respected. It is no less essential that the goodwill of supervisors and managers be maintained.

The investigators themselves can do much to re-enforce the employees' willingness and confidence. Every detail of interview and questionnaire procedure should be considered from this standpoint. One important problem, here, is whether the study can be made by persons already in the organization and identified with management. Research students from outside seem to me to have a tremendous advantage. Another question is whether interviews and question blanks must be kept anonymous. While this procedure has usually been followed, I believe names can be secured with proper precautions. This was done at Kimberly-Clark. The great advantage is that attitudes can be correlated with personal data.

In this connection, a question is also often raised whether attitude studies are not likely to stir up trouble, to make employees think about things to criticize. How true is that criticism? My experience indicates that people need no extra stimulation to develop grievances. In fact there is considerable support for a view quite the opposite. When people can talk freely they are less likely to store up and exaggerate their troubles. Hence, a well-conducted attitude study should have direct therapeutic value as a by-product.

The general answer to our first question is that in many fortunate industrial situations, employees will cooperate. Even in places where they are less willing, skilled interviewers can accomplish a great deal—especially by informal or impressionistic methods. What, then, shall we do about attitude measurements in less favorable settings—where they are probably most needed? I leave that question to you.

The second question is: Even where employees cooperate fully, how well are they able to reveal their attitudes? The problem is partly one of language limitations. Can workers put into words any save the simple and familiar feelings? Or, where questions are used, do the words mean what they do to the investigator? Apparently the only solution is to use utmost care in avoiding ambiguities, to adapt one's language to the persons dealt with, and to judge the attitude in terms of many statements or answers which check one another. Here, too, arise the difficulties created by rationalizing or self-defense tendencies on the part of the people studied. A demoted employee, for example, declares his new job is splendid; he likes it better than any other work he has done. Now this may be only his surface attitude, what he is trying to make himself believe to save his face. He would probably seize an opportunity to be reinstated in the old job. Question blanks miss the deeper attitudes in such cases; so also do interviewers who are not

highly skilled. This is one sample of the whole question of how far verbal attitudes and the attitudes which determine behavior agree. This entire problem of how well people are able to reveal their attitudes seems to me to point to the desirability of informal and skilled interviewing instead of, or in addition to, questionnaire and scale methods for studying attitudes. It also suggests certain values of the guided as against the unguided interview.

The third set of issues center in the question: How well can the investigator report and interpret attitudes? What training should interviewers have? How seriously do their biases, expectations, and pet theories color their findings? How do their own emotional attitudes affect what they are looking for and are prepared to see? Answers to these questions are fragmentary, but a little disquieting. Great differences are sometimes reported from different interviewers. In one study, for example, an interviewer with a prohibition bias reported that 34 per cent of the men in a destitute group gave liquor as the cause of their condition, while another interviewer in the same inquiry found that only 11 per cent blamed liquor. Thorough preparation of interviewers is a most important need in attitude studies, both on the side of skill in conducting the interview and in recognizing and allowing for their own prejudices. Formal question blanks and scales have a decided advantage in this matter of objectivity. In all methods save the unguided interview, however, there is great danger of suggestive questions. Constant care is needed to avoid asking questions in a way that will bring the expected reply.

Fourth, do our attitude measurements give us a rounded or complete picture? In the case of unguided interviews, do employees actually mention all their important attitudes—or only those that for one reason or another are at the surface? Are they not especially prone to stress the recent objects of feelings, things that are changing or that have created new strains or new good feelings? In other words, are the matters that are uppermost in our thinking necessarily the ones important in the long run? Do we not readily overlook deep-seated attitudes to which we have become accustomed? The trusted and admired head of a concern may be the outstanding influence affecting the morale of employees. Yet he may not be mentioned by them. He is taken for granted; he is not an object of present attention. New lockers or a safety slogan contest loom larger for the moment. In some instances the deeper motivations may never have been clearly recognized. These considerations are serious difficulties of the unguided interview method.

In the case of questionnaires, scales, and guided interviews, the problem is to plan broadly enough to cover everything that may be significant. We have an unlimited number of attitudes, of which certain dominant ones are particularly worth inquiring into. An important part of attitude studies is the preliminary gathering of points to be inquired into, the survey of

possibly significant attitudes. Impressionistic methods are probably best in this preliminary stage. As an aid, however, a comprehensive psychological classification of attitudes in terms of "dependable motives" or needs is of value. What about the question of whether the job satisfies or interferes with self-assertive impulses? Workmanship tendencies? Sex and family motivations? What things in this industrial situation arouse anger or fear? I believe there is much to be derived from closer tie-ups of our attitude inquiries with our psychological theories of motivation along such lines as these. On the side of technique, it means that our question blanks would be planned more fully to cover the field of workers' feelings. We would secure a more rounded and better balanced picture. Single attitude scales clearly can not meet this need.

Finally, our fifth set of questions. Do our attitude measurements give us a realistic view? This question applies particularly to the use of formal question blanks and scales. The very conception, in fact, of measuring attitudes carries with it some necessary abstracting from the complexity of the actual attitudes. Attitudes as they occur in the natural state have most complicated inter-connections. What we call one attitude is usually one aspect of a tangled network. What we get in our measurements is a one-dimension description—simply an index of how favorable or unfavorable the feeling is toward an object. For practical purposes we usually want to know far more. Take, for example, employees' attitudes with respect to economizing or eliminating waste. These attitudes are all tied up with attitudes toward the boss, toward wage policies and fairness of treatment, toward the wealth of the company and what happens to profits, toward what the management itself is doing to eliminate waste, toward security of employment, toward thrift and the sinfulness of waste in general. If something is to be done about the problem of waste, we want to know these attitudes in something of their actual richness and relatedness. To know that the attitude is unfavorable takes us only a short way. A negative attitude may reflect fear or anger or disgust or lowered self-esteem. It is important to know which. When we force people's attitudes into a form to fit our measuring stick, let us remember what it is we have measured.

The conclusion is that employee attitude studies for practical purposes should always depend less on formal measurements than on informal, more realistic interview and question-blank methods.

I fear that my recital of difficulties and criticisms may seem to indicate that my attitude toward attitude studies is a negative one. If I have given that impression, it merely illustrates anew how easily attitudes are misinterpreted. I believe so heartily in the value of having employees express their feelings, in fact, that I should go far beyond an occasional survey. We need provisions for continuous expression. Sound personnel planning will not be content with morale stock-taking once a year or once in several

years. What is needed is a perpetual inventory. Especially is this true since the inventory functions at the same time to maintain goodwill and relieve tense feelings.

The continuous flow of employee attitudes to management may occur through three principal channels—through the regular line organization, through employees' representatives—either labor union or company organization—and through the personnel office or some member of management functioning in a personnel capacity. While it is not appropriate to go into details on these matters here, we should at least be clearly aware of the close tie-up of special attitude measurement work with the broader problem of fostering adequate means of communication and understanding between workers and management. The job of knowing employee attitudes is a day-by-day responsibility of management. Special attitude studies and measurement techniques are aids and supplements in the performance of this task. Few personnel functions are more deserving of attention.

Summary of Discussion

FOLLOWING Mr. Kornhauser's paper, Mr. R. S. Uhrbrock made a progress report on an extensive study of employees' attitudes in a large manufacturing company. The method used represented an industrial application of the attitude measurement techniques developed by Dr. L. L. Thurstone, of the University of Chicago. Scale values were assigned to 279 statements which expressed degrees of favorable or unfavorable attitude toward company plans, policies and practices. These scale values were determined through the cooperation of more than two hundred judges. The following are representative of the kinds of statements retained for purposes of this study:

Scale Value	*Statement*
89	A man can get ahead in this company if he tries.
73	The wage incentive plan gives me fair pay.
54	I believe accidents will happen no matter what you do about them.
28	The foremen show too much favoritism.
15	They don't give a man a chance to get ahead in this company.

Fifty statements were printed in a small booklet, but without the scale values. The values ranged from 8 to 105, and were fairly equally distributed throughout the scale. The items were printed in heterogeneous order. Employees were assembled in groups of one hundred, and were asked to check each statement that they believed to be true. No booklets were signed, and no attempt was made to identify the responses of any individual. The

attitude test was administered to 4,500 employees, in 11 different factories, scattered from New York to Long Beach, and from Chicago to Dallas.

The scoring of the tests was simple. The scale value was entered alongside each item that was checked as representing the true opinion of an employee. These values were added, and then divided by the number of items checked. In this way a score was obtained that represented the employee's average attitude. A high average score was interpreted to mean that the employee was favorably disposed toward the company, because he had checked a preponderance of favorable statements. A low score may indicate antagonistic attitudes. Comparisons can be made between factories, between men and women employees, etc. A tally of the number of times each item is checked may indicate the relative influence of different plans and policies, so far as the creation of attitudes is concerned. Employees expressed themselves freely. A study of the responses may reveal points of irritation that can be removed.

A preliminary study of attitudes of clerical employees revealed the fact that attitude and general intelligence were not correlated. Favorable attitude may develop in all levels of intelligence. Likewise, unfavorable attitude may appear on any level of ability. Attitude and knowledge of company history, plans, and products also were not correlated. Therefore, future selection of individuals of marked mental ability would not insure improvement in attitude. Attitudes concerning one's work are acquired, and they result from a variety of experiences. Some may be highly specific, as attitude toward one's foreman; or general, as attitude toward the promotional opportunities believed to exist in the company.

Mr. O. S. Lovekin of the Graduate School of Business Administration, Harvard University, raised the question as to how far statistical measurements of attitudes could distinguish between the manifest and latent content of what was expressed, that is, between what a man said and the feelings or emotions back of what he said. If we accept as an "attitude" what a person says he feels, without any further inquiry as to why he feels that way, we may be missing the most valuable material obtainable in our zeal for obtaining what looks like objective data. Such methods will bring out, no doubt, the presence of marked attitudes affecting large groups, but in dealing with individuals or with smaller groups we cannot overlook the necessity for interpretation. When Smith and Jones both say "There's no chance to get ahead in this company," Smith may be bewailing his own inadequate education and Jones may be trying to say that his foreman won't give his subordinates a fair chance. In dealing with them as individuals we cannot take their common attitude at its face value. Even in handling large groups, to base a company policy on the mere presence of a common attitude without any consideration of its possible diverse sources might well result in merely treating a symptom. Intelligent executive action

must be directed at the facts back of an attitude. These are the very facts that we may neglect, if we fail to accompany our statistical research with personal interviewing and interpretation made by the interviewer in the field. No system, no matter how objective it appears, can take the place of the interviewers' intelligence in providing this necessary interpretation.

Mr. Mark L. Putnam referred to the experience of the Western Electric Company in interviewing employees regarding their work relationships. The procedure did not provide for measuring attitudes by means of printed scales, but relied upon the evaluation of conversational material, obtained and recorded by skilled interviewers. It was found that home influences, recreations, finances, character of supervision, and feelings of security were potent attitude determinants.

Is it important to discover why an attitude exists, or is the main purpose served, in most industrial cases, by inventorying the attitudes of workers, so that management may inaugurate common sense changes in order to improve morale? It was the concensus of opinion of the group that the practical thing is to discover the differences existing in the group regarding important issues and to supplement that initial investigation by more searching studies designed to reveal deep-seated causes of unfavorable attitudes. In the meantime, obvious changes may be made.

Mr. Kornhauser illustrated from his study of attitudes at the Kimberly-Clark Corporation how the different attitudes of two groups may be clearly traced to one determining influence—in this case, supervision. The causal interpretation is reasonably conclusive, however, only because the working groups compared were alike in almost every respect save in this one matter of difference of supervision. In most attitude studies we must trust to flashes of insight—more or less penetrating as the case may be—and must base constructive action on those interpretations of the attitudes found.

Mrs. Sadie Myers Shellow, of the Milwaukee Electric Railway and Light Company, asked if employees were consistent in checking attitude statements. For example, there might be instances of employees who criticized their foremen, the lunch-room, the company physician, and then indicated that the company is honest and sincere in its dealings with employees, and that it is a good place to work. This tendency appears when attitude scales are used and may throw some light on the problem of general and specific attitudes.

Dr. Pearce C. Kelley, Assistant Professor of Business Administration, University of Arkansas, referred to the attitudes of college students who may criticize severely the management of a college book-store or some other part of their college environment, but whose attitude toward their school as a whole is loyal and wholesome, as illustrating a situation where members of an organization may have an unfavorable attitude toward certain specific

elements in an organization and a very favorable one toward the organization as a whole.

Mr. D. H. Morris, of the Ohio Bell Telephone Company, remarked that at this time employees were bending every effort to turn out satisfactory work and that attitude studies should reveal a high degree of apparent loyalty and cooperation. However, in considering results obtained now, due weight should be given to the obvious fact that behind a great deal of the apparent loyalty and intensive effort to perform effectively that is now being displayed, there is the psychology of fear that the employee may lose the job.

Mr. H. B. Bergen, Director of Industrial Relations, The Procter & Gamble Company and Vice President in Charge of Personnel Division, American Management Association, closed this round table discussion with the statement: "Attitude measurement is not an esoteric study. A new technique is being developed that should supplement measures of capacity, ability and achievement. A new tool for the study of human relations is available."

Reported by R. S. UHRBROCK.

Stock Purchase and Thrift Plans*

EMPLOYEE stock ownership plans serve more than one purpose in a personnel program, but it is generally accepted that their most important purpose is that of promoting thrift. On the success of these plans in providing a safe means of saving depends in large measure the success of such other purposes as bettering company morale and increasing mutual understanding. The Industrial Relations Section of Princeton University, therefore, is studying employee stock ownership plans as a means of thrift, particularly for the rank and file of industrial employees.

This study includes figures on the decline in value of securities sold to employees by their companies and shows rather disastrous and discouraging drops. The true significance of these losses can only be appreciated, however, in their relation to employment and earnings. Workers who were able to hold on to their stocks were saved the heavy loss of liquidating at 1932 prices. The National Industrial Conference Board reports a decline of 42.8 per cent in the employment of wage earners in 25 industries in the United States from June, 1929 to June, 1932, and a decline in weekly wages over the same period of 43.4 per cent. Those unemployed or working at reduced time and rate schedules should be able to turn to their savings and realize as much as they put into them. Preparation to meet an emerg-

* Summary of discussion at a Round Table Meeting held during the A. M. A. Personnel Conference at Palmer House, Chicago, Feb. 7, 1933. Discussion was led by C. S. CHING, Director of Industrial and Public Relations, United States Rubber Company, with additional remarks by Miss ELEANOR DAVIS, Assistant Director, Industrial Relations Section, Princeton University.

ency was one of the incentives for saving. It is a severe indictment of employee stock purchase plans as a means for promoting thrift that, at the time when investors most need their savings, they can rarely realize upon them except at a loss.

Plans for the sale of stock to employees contain one or more of a number of protective features, such as favorable selling prices to employees, special bonuses and dividends, company contributions toward the cost of employee stock, provisions for refunding subscription payments in cash in case of cancellation, and guarantees of the repayment of the amount paid for the stock by the employee.

Bonuses and special dividends are offered chiefly for the purpose of encouraging employees to retain possession of their stock, but they serve at the same time as a protection to investment by reducing the net cost of the stock to the employees. Two features contained in certain employee stock ownership plans have either completely protected employee investments or have afforded at least a wide margin of safety. One of these is the contribution by the company of a substantial percentage of the cost of the stocks. Such a contribution does greatly reduce the danger of loss of employee investment by providing a substantial buffer against ordinary declines in the market prices of the stock. Not until prices have fallen below the 20 to 33 1/3 per cent contributed by the company are employee investments affected. Although a contribution of this size toward the purchase price seems a necessary safeguard, nevertheless, its cost gives justification for some hesitancy as to whether or not employee stock purchase is the best method by which a company may assist its employees. A second protective feature is company guarantee or repurchase of employee stock at the purchase price.

There has been a heavy mortality in employee stock purchase plans in the last few years. Of the fifty plans studied by the Princeton group, only 19 are now in effect. The years of the depression have brought modification of plans, as well as suspension and cancellation. The most important kind of change perhaps may be the turn toward plans limited to selected groups of executive employees, when ownership will be either through purchase or as a bonus or profit-sharing dividend. As the result of the depression stricter limitations are being placed on the sale of company stock to low earning groups. Plans limited to groups receiving higher earnings and therefore better able to take risks and to carry over longer terms may alone survive. For the industrial employee earning limited wages, thrift plans offering a greater degree of security of principal or safeguards more than usually reliable, may replace the pre-depression stock purchase plan.

The credit union is a possible direction in savings plans for lesser paid employees.

Reported by L. J. ZOELLER.

Fatigue and Work Efficiency*

Introduction

IN INTRODUCING Mr. O. S. Lovekin and Mr. D. B. Dill, Mr. H. B. Bergen, Director of Industrial Relations, The Procter & Gamble Company, and Vice President in Charge of Personnel Division, American Management Association, declared that personnel men should give more thought to the question of fatigue and should not leave the problem entirely in the hands of industrial engineers. He stressed the importance of the physiological approach to the problem.

Mr. Lovekin, who opened the discussion, stated that studies of fatigue in industry had been a corollary to the development of efficiency methods from their inception. The object of the industrial engineer was to get greater output at less cost, both of money and of effort. His primary consideration has been more in the direction of perfecting systems of work, and the technology of the working process, than in the human being who is doing the work. This meeting was to consider as the chief point of interest the worker and his reactions, not the work itself.

The problem of fatigue probably was first attacked in a coordinated way in England during the war. Under the urgent necessity for a high production of munitions the workers in munition plants were working long hours. It became vital to obtain a clearer knowledge of the effect of fatigue on production. The Health of Munition Workers Committee was formed in 1915 and the Industrial Fatigue Research Board in 1917. This board by 1929 had published about 60 monographs giving the results of investigations in a number of different industries.

An examination of this series shows that it covers such topics as hours of work, rest pauses, accidents, atmospheric conditions, time and motion study, vocational guidance and selection, and other factors influencing the worker and his work, but that any investigation of fatigue as a thing in itself did not get very far. It is perhaps significant that the word "Fatigue" was dropped from the title of the Board in 1930, and the organization took the name of the Industrial Health Research Board. This general development shows that it is more fruitful to examine the human adjustment to a working situation than to search for some entity called fatigue which can be tested for, isolated, and perhaps removed. Fatigue is an incapacity to continue functioning caused by continued work, but its symptoms will be varied. In heavy effort and in work under unfavorable conditions we find gross organic changes which can be measured. In lighter work we cannot

* Report of a Round Table Meeting held during the A. M. A. Personnel Conference at the Palmer House, Chicago, Feb. 7, 1933. Discussion was led by D. B. DILL, Assistant Professor of Biological Chemistry, Harvard University, and O. S. LOVEKIN, Assistant Professor of Industrial Research, Graduate School of Business Administration, Harvard University.

measure them directly and must fall back on an analysis of the work curve and psychological effects. The question with which we are concerned is, "What are the limiting factors which prevent the organism from continuing its activity?"

The Nature of Fatigue

By D. B. DILL, *Assistant Professor of Biological Chemistry, Harvard University*

IT IS useful to assume that there are two categories of fatigue; in one, large organic changes occur; in the other, such changes are absent. Our discussion deals with the first category. For purposes of illustration we may say that the runner finishing a race, a soldier at the end of a forced march, the worker in certain heavy industries, or any worker under sufficiently unfavorable environmental conditions may exhibit these large changes. The basis for the classification is simple: if the capacity for work output is taxed, symptoms of breakdown occur, associated with physiological changes which can be measured by the methods of biochemistry and physiology. If the rate of work output is but a small fraction of the capacity the changes at the end of the day are qualitatively different and can be measured only with the tools of the psychologist.

If the gross organic changes occur only when the capacity for work is approached, it is logical to consider the chief factors which may limit working capacity. First of all, the supply of oxygen may be a limiting factor. Each individual has a measurable capacity for transporting oxygen from lungs to tissues. Temporarily he can carry on work at a greater rate than his oxygen supply warrants. When this so-called "anaerobic" reserve of energy is tapped, however, it is not without expense. The presence of an unoxidized substance, lactic acid, is revealed by blood analysis and its concentration gives an approximate measure of fatigue of this sort.

Not only is the total oxygen transport capacity a limiting factor but the rate at which oxygen that can be supplied to local areas limits the rate of work output by groups of muscle. Thus in work involving only the arms, with the other muscles remaining inactive, the circulatory system in general may be under no great stress while the local blood supply to the arms may be maximal. Under such conditions blood leaving the arms may be nearly free of oxygen and loaded with lactic acid. But work in such a state cannot be maintained for long and a rest period must be introduced to restore the equilibrium.

In this connection it is worth pointing out that the superiority of the dog over man as a runner is perhaps partly because the work he does is divided between four legs rather than two. Thus the blood which is supplied to each leg carries out a useful function in oxygen transport.

The supply of fuel must also be considered as a possible limiting factor. In ordinary physical activity the fuels used are almost entirely carbohydrate and fat. Beginning work after a meal, carbohydrate is the principal fuel used, but the proportion of fat used increases as the supply of carbohydrate diminishes. We have found that a man starting hard work after a light breakfast may use two-thirds carbohydrate and one-third fat at the beginning. He has enough fuel reserve to do a full day's work without lunch but at the end of the day he may be using only one-sixth carbohydrate and five-sixths fat. During the day he may have oxidized one pound of carbohydrate, nearly his entire reserve of this substance. It is apparent that the fuel reserve is sufficient to permit a full day's work without lunch but such a procedure is not pleasant. For two or three hours after a meal one has a sense of well-being that is associated with a concentration of sugar in the blood of approximately .1 per cent. The decrease in carbohydrate reserve during hard work is reflected by a decreasing concentration of blood sugar. This may reach .08 per cent at the end of three hours' work and, if work continues for six or eight hours without food, it may reach a level of .07 per cent. Such a low level of blood sugar is associated with uncomfortable sensations which are relieved by taking food. Obviously this is a form of fatigue which is quite different in genesis and nature from that due to inadequate oxygen supply.

It is worth emphasizing that fatigue associated with depletion of fuel supplies comes long before the fuel supplies are exhausted. As evidence of this we may refer to the performance of our dog "Sally." She has on several occasions run on a motor-driven treadmill for 24 hours with 5 minute rest periods every half hour. In her best performance she covered 110 miles in 27 hours, climbing 18 miles. During the first eight hours she runs with pleasure, during the next 10 hours without much fatigue, and during the last 6 or 8 hours with increasing fatigue. Even at the end, however, she is not exhausted. Another dog, "Joe," runs voluntarily on the treadmill. With the gate to the treadmill open he runs continuously except for short pauses for water. On one occasion he ran for 6 hours, covering 40 miles and climbing 6½ miles. At the end his blood sugar concentration was .05 and although probably acutely hungry, he had voluntarily continued running.

Any combustion engine must be provided not only with fuel and oxygen but also with a heat-dissipative device. In man the dissipation of heat is no problem except under unusual environmental conditions. In dissipating heat, part of the blood is shunted from its normal channels to the skin where it is cooled. As the external temperature increases, the volume of blood thus shunted to the skin increases. At the same time the volume of blood available for transporting oxygen to the active tissues diminishes and the capacity for work diminishes accordingly. In order to accomplish the same transport of oxygen to tissues the heart is called upon for an increase in

output. The relation of body temperature and heart rate to external temperature is important. With the same body temperature and the same rate of work output there may be a difference of 30 or 40 beats per minute in the heart rate. Work which is carried on with ease ordinarily may result in collapse in high external temperature.

In the course of several hot sultry days there may be cumulative fatigue, partly because sleep is interfered with. The weak may collapse from cardiac failure or from heat prostration. But the strongest is more fatigued than in normal weather. Presumably one should not expect the usual work output during such weather.

When man is working regularly in a hot environment as in the tropics, in the hot desert, or in deep mines, he may become acclimatized and able to perform much more work than the unacclimatized worker. Occasionally, especially during the process of acclimatization, breakdown may occur with so-called "heat cramps." This condition is associated with depletion of salt reserves through salt loss in the sweat. The administration of salt cures this condition and an increase in salt intake with the food is a preventive. It is worth emphasizing therefore that in a prolonged hot spell or in any environment causing heavy sweating the diet should be modified to include plenty of salt.

Having considered, as factors limiting the rate of work output, supply of oxygen and fuel and dissipation of heat, it is fair to inquire what proportion of fuel is converted to useful work. In man, under the most favorable conditions about one-fifth is so converted. The efficiency in the mechanical sense depends among other factors upon the coordinating function of the central nervous system. If the coordination of the central nervous system is effective the man is skillful; if not, he is clumsy. At the end of the day's work, if the clumsy worker has accomplished as much as the skillful worker he has done so only by expending more energy and he will be more fatigued. The process of training, important in any job, is largely a matter of coordinating movements until they become most effective. The athlete is successful partly because of his superior natural endowment but also because he has acquired superior skill. Thus in a marathon race every runner is taxing his capacity for transporting oxygen to the limit. Of two runners having the same capacity for transporting oxygen the man wins who is most efficient in converting his fuel reserves into useful mechanical work. Although the two men may use oxygen and fuel at the same rate, the winner converts more of his energy reserves to mechanical energy and less to heat. Similarly, in performing the same task with different skill, one man may be compelled to work at 50 per cent of his capacity for transporting oxygen while the other requires only 25 per cent of his capacity. The task will seem difficult for the first man and easy for the second. At the end of the day the former will be much more fatigued than the latter.

We can say that fatigue is not an entity but merely a convenient word to describe a variety of phenomena. The common fallacy of supposing that the word fatigue corresponds to a definite thing has been the source of much fatigue. Fatigue from short bursts of activity, whether by the whole body or by isolated muscle groups is characterized by increase in lactic acid and temporary inability to continue. Fatigue from depletion of fuel reserves does not occur commonly in man but when it does, chemical analysis of the blood reveals a low level of blood sugar. Fatigue from working in a hot environment has several manifestations, the most simple to measure being an increase in heart rate. Finally, of two individuals doing the same task one may be more fatigued than the other because the poor nervous coordination of the unskillful man makes it necessary for him to expend more energy than the other. In general, fatigue from any of these causes is greater, the more nearly the individual approaches his capacity for work.

In conclusion, it is safe to say that the usual factory worker rarely manifests fatigue from any of these causes because his output of physical energy is but a small fraction of his capacity. When conditions do result in fatigue of the sorts we have described, the remedies consist in: 1. careful selection of man for the job; 2. adequate provision for training and adaptation of the worker; and 3. control of environmental conditions where this is possible.

Summary of Discussion

FOLLOWING Mr. Dill's paper Mr. Lovekin discussed some practical problems arising in factory situations. One is how to determine the amount of energy being used on a particular job. For example, in a rubber shoe factory the question arose as to how fast an assembly-conveyor should be run for maximum efficiency. After a certain speed had been reached the workers had to use more than a proportionate amount of energy to keep up with the conveyor. A rough estimate of the amount of energy used could be obtained without complicated apparatus by pulse rate and blood pressure readings, and the most efficient speed thus determined.[1]

The shape of a typical daily work curve was discussed and its relation to the question of where to put in rest pauses. It was brought out that workers will take rest pauses whether they are officially provided for or not, and that it is better to have them organized into definite periods. The question as to their length and just where to place them in the work spell would vary according to the type of work and the particular situation. In

[1] Lovekin, Osgood S., "The Quantitative Measurement of Human Efficiency under Factory Conditions," *Journal of Industrial Hygiene*, March, 1930, p. 99.

general it has been found wise to insert a rest pause just about the time a work curve starts to fall. In typical light factory work two rest pauses of ten minutes in the morning and afternoon have been found effective.

Mr. I. O. Royse of the Ralston Purina Company, stated that the attitude of the worker was probably more important than the amount of fatigue that resulted during the work. He also suggested that a desirable point to introduce rest pauses might be determined by questioning the workers as to the time they preferred to rest. He referred to the experience of the Purina Mills in permitting its employees to engage in any activity they desired during the middle of the morning for a period of ten minutes. This "relaxation" may take the form of sitting idly at the desk during the period, reading, talking with friends, or walking to another floor. No obvious supervision is exercised to restrict the activity of the worker during this rest period.

Mr. Lovekin continued with a discussion of monotony, and referred to Report No. 56 of the Industrial Fatigue Research Board on "The Effects of Monotony in Work." [2] A typical work curve where the worker is bored will show a drop during the middle of the working spell, and probably an end spurt. The fluctuations in the curve are often higher than in a normal curve, and the morning and afternoon level will be about the same. Board workers will overestimate short intervals of time. Boredom or monotony seems to be greatest when the work takes only a part of the worker's attention, yet demands enough of it so that his mind cannot wander entirely away from it. There is always the danger of the investigator projecting his own viewpoint in studying this subject. What is boring to one person may not be so to another. These are wide individual variations. The problem is really one of the relation of attention to a wider field of awareness; monotonous work is a distraction which keeps one from either fully attending or fully relaxing. Some people are bored all the time whether working or not. In their cases the distraction probably comes from some form of inner conflict which has the same effect on them as monotonous work on a normal person.

Mr. Bergen raised the question of the practicability of accompanying the introduction of wage incentive plans by fatigue studies. Mr. Lovekin agreed with the viewpoint expressed and urged that an experimental attitude be adopted, pointing out that differences existed between particular situations and that no one system would always be the best.

Reported by R. S. UHRBROCK.

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[2] Wyatt, S., and Fraser, J. A. London: His Majesty's Stationery Office, 1929. 53 pp.

Employee Representation and Joint Relations*

Introductory Remarks by S. F. SHATTUCK, *Vice-President, Department of Personnel, Kimberly-Clark Corporation*

EMPLOYEE representation, in its varied forms, found its way into many of our industries during the hectic days of the war and the readjustment years of 1919, 1920 and 1921. It proved a useful instrument, making for understanding between men and management, as wage levels surged upward at the close of the war and downward during 1920 and 1921. In the middle and later twenties, business conditions and wage levels straightened out and remained reasonably steady. Then came the sifting and revealing period of 1930, 1931 and 1932. Now is the time to revamp physical plant and equipment if we have the material resources with which to work and to evaluate and readjust our bases of human relationships if we have the spiritual resources to invest in them.

To this end, management should re-state its purpose and expectancy in instituting and maintaining employee representation in the industrial structure. Such platitudes of the past as "Employees and the management shall have equal representation in the consideration of all questions of policy relating to working conditions" are outworn. Implications of legislative function where no genuine legislative function exists must be discarded.

Among the factors which must be given consideration in re-evaluating and revamping our conceptions of employee representation is relation to the supervisory line. Too often the supervisory line has been detoured in the passage of facts and information from management to rank and file workers. This assertion backs us up to the perspective of management as it looks out upon its organization. Just what is management's sense of relation as between its supervisory line and its unit of employee representation? Is maximum use being made of the line in the passage of facts and viewpoints from top management to rank and file employees? Assuming that full dignity in these matters is accorded to the supervisory line, what proper and supporting function may the unit of employee representation perform? It will be conceded that good supervision rates high, some would say highest, in the list of workers' desires; therefore, how can employee representation be used to the betterment of supervision?

Results which are satisfying to the employee cannot be achieved through employee representation unless the fear element is minimized. All of us who know something of the psychology of industrial relations know what fear of a raw deal or of loss of job does to freedom of expression, and expression must be unrestrained in any shop council if such a body is to justify its

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* Report of a Round Table Meeting held during the A. M. A. Personnel Conference at the Palmer House, Chicago, February 7, 1933. Discussion at this session was led by Mr. Shattuck.

existence. How may grievances be aired when the workers' supervisor sits at the same table, and how may the fear element be removed without undermining supervision? Such questions seem to point us to a flexible form of organization which provides periodic opportunity for a plant manager to sit down, quite informally and confidentially, with his elected representatives. This suggestion throws into relief the delicacy of the manager's position and function. He must retain the full confidence of his unit of employee representation and of his supervisory line. Tact, balance, and a rare sense of proportion are the requirements. Are the demands of such a concept too great? Can such a paradox exist in any organization?

Assuming that management must take final responsibility for decisions and, therefore, assuming a non-legislative function for employee representation, to what extent, and just how, may such a unit encourage creative thinking on the part of employees and how may it become a source of data and advice for managerial decisions?

Finally, if employee representation is to have an enduring place in industry, how shall a constructive, interesting and mutually beneficial program be developed and maintained over a period of years?

Summary of Discussion

THE discussion opened to view two apparently divergent approaches to our attitudes toward employee representation, both having a considerable body of experience behind them. The one attitude points to the need of redefining the purpose and expectancy of employee representation in terms of specific functions. The other view would leave it undefined. The former attitude, as expressed in the meeting, would admit that management must and does, in the final analysis, make decisions. The other conception would hinge decisions upon important matters, such as wage movements, upon joint acceptance by both elements represented on the shop council; the one would recognize the council as advisory only, the other, as both advisory and legislative.

The first specific function as brought out in the discussion was to serve as a channel for expression of suggestions and grievances and the provision of data for managerial decisions. Discussion of the grievance function raised the question of freedom of expression in the presence of a supervisor. Can fear be eliminated or can it merely be minimized? It was intimated that about one man out of twenty will express himself fearlessly, but that the majority of humans remain mute in such an environment. Some participants asserted that there does exist utter freedom of expression in their council sessions, while others admitted that all too often men refrain from expressing that which rests most heavily on their minds because of job fear or unwillingness to risk the sharp edge of displeasure which some supervisors know how to show.

Discussion of the legislative or semi-legislative function brought out the opinion that a council vote, as a condition to placing in effect a wage reduction proposed by management, does possess real significance. Other parties to the conference expressed skepticism as to the genuineness of such an affirmative vote, taking the position that as often as not the employee representative finds himself helpless to modify the proposed action or to convince his constituents of its necessity.

The function of providing data in the shape of feelings, attitudes and facts to be used by management in making its decisions or formulating its policies assumes: 1. that management is sincerely desirous of having and using facts, feelings and attitudes which employees are in position to furnish; 2. that there is a frank recognition of the premise that management must be responsible for decisions. Discussion of this point reached no conclusion, as the minds of participants did not meet on the fundamental point of defining employee representation in terms of definite functions. The majority sentiment favored an open door for the free discussion of any subject introduced and, except for educational features, there was no feeling of apparent need for planned programs.

The second function is that of education and information. On this point there was no divergence of view. Employee representation lends itself admirably to the educational function. Experience of participants, however, varied as to perspective of the supervisory line and of the unit of employee representation in relation to the passage from management to employees of vital information.

Another function emphasized is that of supplying the means by which all questions from the employees may be brought directly to the management without the censorship of foremen and other minor executives.

Majority sentiment favored numerical equality of management and employee representatives. It was suggested that a flexible form of organization might be an improvement; for instance, stated meetings of a plant manager with his elected representatives for the carrying out of the first function, alternating with larger, more formal meetings, which might include deputy representatives and supervisors, for the carrying out of the second function. Before this larger group might appear company officers, staff heads or the sales manager. A criticism was lodged against the smaller unit of employee representatives meeting alone with the manager, on the ground that such a move would be contrary to good organization and that supervisors would resent it. On the other hand, it was argued that a flexible plan, as outlined, would orient itself about the personality of the plant manager, and, if he had sufficient balance, the scheme would have a chance for life and usefulness.

Many plans place definite limitations upon the nature of the subjects to be discussed by the employee representation group. Few permit legislative action of any character on such problems as wages, hours of work, and

questions of supervision. One large organization places absolutely no restrictions or limitations on the operation of its employee representation plan. Representatives are "encouraged to discuss any questions and any subject without fear or favor," and at one of the plants the manager declared that he could not operate his plant without his employee council.

One member of the group expressed the opinion that the more the employees know of the company and its business the better for management and men, and that in accordance with this policy he follows the plan of laying all of his cards on the table, in which case employee representatives have felt free to do likewise.

Another company maintains that it is operating effectively in acquainting the employees with the economics of its business, improving the quality of the product, eliminating wastes, and generally reducing operating costs.

According to one representative the most common subjects for discussion between employees and management at this time are "How can we get more business," and "How can further economies be effected?"

On the whole, employee representation is felt to be worthwhile. It seemed to be the general opinion, however, that ultimate effectiveness of a joint relations policy would be determined entirely by the attitude of the management in directing and developing such a plan over a period of years.

Reported by L. J. ZOELLER.

Psychological Tests for Executives*

By FORREST A. KINGSBURY, *Associate Professor of Psychology, University of Chicago*

A PSYCHOLOGICAL test may be defined as a standard sample of individual behavior, measured or graded. The use of such samples for selective purposes has much in common with the practice of selecting and purchasing commodities on the basis of graded samples. A food manufacturer, for example, commissions his grain broker to purchase a number of cars of wheat of specified variety and grade. The broker buys them without ever having seen more of the wheat than the small samplings taken from deep in each car. He assumes that each carload will resemble its sample and buys accordingly. Such action implies, first, that the sample, though it is small, is sufficiently large and representative to show fairly the proportions of different sizes and qualities of grain in the entire carload. It im-

* Presented at a Round Table Meeting on Psychological Tests for Executives, held during the A. M. A. Personnel Conference at the Palmer House, Chicago, February 8, 1933. Discussion at this session was led by Mr. Kingsbury.

plies the existence of well-defined standards of grade and kind, thorough familiarity with those standards, and competence in applying them. It implies also that the manufacturer, in ordering that particular variety and grade, knew, beyond question, that that was the one thing which would best meet his specific manufacturing needs. If he got what he needed it was because the carload met the sample, the sample met the standard of the grade ordered, and the grade ordered met the user's needs. Failure of any one of the links in the chain would have meant failure to attain the end sought.

Selecting an executive or other employee to fit a certain niche in an organization, by obtaining and measuring a sample of his performance, has much in common with this example. If the sampling be too small or unrepresentative or not accurately measurable, or if the behavior it samples is not the kind that is essential for the vacant position, the test will be worthless. The important thing is to evaluate each test; i.e., to learn whether it is a good test and whether it is the right test. If these two facts are unknown, testing is a waste of time.

There are, however, two important differences between sampling wheat and sampling behavior. Human behavior is varied and complex, and a single simple sampling rarely suffices; many gradings, many standards, must be used, each to diagnose a different aspect. Some aspects will best be revealed not by tests but by other devices—interviews and personal impressions, experience and success records, recommendations and ratings. Instead of four links—commodity, sampling, standard-grade, and use-situation—we must usually dispense with the third link and match the sampling direct on the one hand to some criterion of success in the job, and on the other to the various personalities we sample. The omitted link, if it existed, would consist of standardized grades of uniform, stable, absolutely generalized, accurately defined traits and abilities. But this link, much as we talk about it, is almost always either worthless or weak or wanting. Most lists of job-qualities are worthless for selection purposes, because they are couched in vague, ambiguous, and hence meaningless terms, and because they assume the concrete actuality of behavior aspects that are mere abstractions. Some are weak because limited to a specific work-situation and not transferable without loss to other situations; others are wanting because, having thrown out weak and worthless concepts, we have found nothing to take their places.

Consequently, the experienced tester places little or no reliance on trait names, even though sometimes he feels compelled to use them for convenience but when he does, he is aware of their limitations and dangers. Instead, he does two things. He studies the work-situation to see what particular psychological tests seem to come closest to sampling the requisite behavior, disregarding the labels they happen to bear. Then he verifies this hypothetical analysis by trying the tests on a suitable group of workers or applicants, and correlating their responses with the best available criteria

of their occupational success. He tests the tests. This takes time and is not easy, but it is the only safe way. A second way of verifying the hypothetical analysis, neither quite so direct nor so reliable as the experimental validation just described, is to adopt the experimental findings of other investigators, made on situations which seem enough like our own so that we assume them to be more or less valid for our own problem. Except, possibly, in the case of a few, well-defined, standard types of work, job-differences, even when minor and unnoticed, may be vital enough to diminish the significance of good tests, when undiscriminatingly carried over. Nevertheless, it is always helpful, in testing tests, to review the experiences of others on problems related to our own. If, thereafter, we can supplement their findings with experimental verification under our own particular conditions, we shall have more confidence in our conclusions.

Adopting this approach to the study of our particular group, namely, business executives—and more especially, of course, minor executives—there are two things we must do. First, we must examine their work and responsibilities, and endeavor to set up the best possible hypothesis as to the kind of testable traits and abilities those duties demand. Second, having done this, we must find out whether our hypothesis is supported by the facts, either by experimental validation, or by critically reviewing the experimental literature on tests of executive ability. Obviously, the latter method is the one we must use here.

What do executives do? They execute. Of course, we cannot pretend to list all the things they execute; details vary too widely. But the broad pattern of executive responsibility is sufficiently constant to be described.

The most important fact to notice is one far too commonly ignored in practice, though not disputed when pointed out. It is this: Executive responsibility is not one kind of thing, but two kinds. Executive ability is not one thing, but two things. These two things are distinct and different, yet equally important: 1. Executives must be able to make plans; 2. Executives must be able to direct people in carrying out those plans.

Some executives are successful because they are good planners, although not successful directors. Others are splendid at coordinating and directing, but their plans and programs are defective. Few executives are equally competent in both directions. Failure to recognize and provide, in both testing and rating, for this obvious distinction is, I believe, one major reason for the unsatisfactory results of most attempts to study, rate and test executives. Good tests of one kind of executive ability are not good tests of the other kind.

Let us attempt, then, to give a description of the competent executive, in terms of his responsibilities, and see what kinds of ability seem called for. My hypothesis is this: Each of the two main divisions of executive responsibility calls for a different set of personal qualifications. The first

one requires a wide, thorough knowledge of one's business and its relationships, both internal and external, and calls for superior mental ability to utilize this knowledge effectively in facing and solving the problems of organization, policy, and program that constantly arise to confront the executive. The other responsibility, that of directing subordinates, necessitates two rather different qualifications—social intelligence and disposition for human contacts, essential in selecting assistants, delegating responsibilities, and keeping people working together with maximum zeal; and dynamic traits of initiative, decisiveness, forcefulness.

Let us repeat and elaborate this hypothetical analysis, bearing in mind its generality, that it ignores many and wide differences in detail.

I. A competent executive is one who can

plan enterprises, programs, organizations;
grasp each problem and define it clearly, both to himself and others;
collect or devise abundant suggestions looking toward its solution;
evaluate these for his own situation;
combine partial solutions into a well coordinated total;
adapt the available means to the end desired; i.e., make plans which are not only admirable, but practicable.

To do these things, apparently, one needs two general kinds of ability:

1. A wide and thorough understanding of his own business and of fields and facts related to it;

2. A good grade of intelligence; i.e., capacity to analyze and reorganize the products of experience, to adapt to new situations, to solve intellectual problems.

II. A competent executive is one who can

direct the execution of plans;
evaluate accurately the abilities, traits, and motives of others—whether subordinates, co-executives, competitors, customers, etc.;
make sound decisions promptly, for subordinates to act upon—also a part of planning;
have these delegated responsibilities properly discharged;
enlist and maintain full cooperation of subordinates and associates;
discover and avert or minimize friction points and sources of conflict, both inter- and intra-personal.

To do these things apparently necessitates another type of general ability, and a particular set of character traits:

3. What may be called loosely, "social aptitude," i.e., interest in and

understanding of people, skill in judging the signs of motive, ability and character, and sagacity in putting such knowledge into use;

4. Certain more or less generalized, dynamic qualities, which we designate variously as decisiveness, drive, persistence, aggressiveness, forcefulness, etc.

Have we any experimental evidence that it is these four types of qualification, which actually do tend to distinguish successful executives? I believe we have. The first hypothetical qualification is "a wide and thorough understanding of one's own business and of related facts and fields." This, obviously, varies too widely from firm to firm to justify extensive standardizing of tests of such knowledge, even though tests might prove useful in unearthing promising promotional material. The small number of such jobs and candidates, the variation in details, not only between lower and higher positions but from year to year, and the fact that this specialized knowledge cannot be presupposed in executives hired from outside, would seem to limit the usefulness of such tests at the executive level. Instead, we usually rely upon some estimate or test of the candidate's capacity for acquiring such knowledge, based upon interviews, ratings, success records, and mental alertness tests. That specialized information tests may, nevertheless, be practicable under some conditions, is apparent from their general use in civil service examinations for the lower executive positions, as well as by the use of objective tests of company information used in Uhrbrock and Richardson's study of 163 factory supervisors in a large manufacturing plant.[1]

The second qualification mentioned is that which we variously term mental alertness, general intelligence, mental ability. Tests of this type have been widely advocated as useful instruments for selecting office clerks and executives.[2] For the latter, however, the evidence is neither so abundant nor so clean-cut as is sometimes thought. Some investigators, notably Scott and associates, found some remarkably high correlations, running up as high as +.82, but most of them in the 50's and 60's, between service-ratings and mental alertness scores.[3] One group described consisted of "junior experts, whose work was to devise new processes, invent new equipment, install efficiency systems, and in general to increase the production of the plant," responsibilities which seem to belong distinctly to the "planning" type. Another group of minor executives, yielding similar correlations, were, like the experts, rated on both present and probable future value to

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[1] Uhrbrock, R. S., and Richardson, M. W., "Item Analysis: The Basis for Constructing a Test for Forecasting Supervisory Ability," *Personnel Journal* (forthcoming issue).

[2] Burtt, H. E. "Principles of Employment Psychology." New York: Houghton Mifflin Company, 1926. pp. 265-93.
Kornhauser, A. W., and Kingsbury, F. A. "Psychological Tests in Business." Chicago: University of Chicago Press, 1924. pp. 77-111.
Scott, W. D., and Clothier, R. C. "Personnel Management." A. W. Shaw Company, (now McGraw-Hill Book Co., New York, N. Y.) 1923. pp. 259-82.
Viteles, M. S. "Industrial Psychology." New York: Norton, 1932. pp. 113-41, 307-22.

[3] Scott and Clothier, *loc. cit.*

the company, a criterion which certainly involves capacity to learn and grow, or intelligence. It is not surprising, therefore, that by such a criterion, mental ability appears to be a relatively important factor. The same relationship was found true in Scott's group of younger production engineers and in many groups of office clerks at the upper, semi-executive, plan-making level. Tables of occupational intelligence standards, based on the army tests and on studies by Fryer and others, give further support to the belief that business executives rate among the distinctly higher occupations, intellectually.[4] Uhrbrock and Richardson found many items of the usual intelligence-test type among the valid differentiators of poor from good supervisors. In Cincinnati, Beckman and Levine, comparing city executives with meter-readers, using a directions test of the intelligence-test type, found a difference in the direction suggested.[5] But, on the other hand, an often-quoted study, by Bingham and Davis failed to reveal a correlation between the success-ratings based on experience-records of a group of 73 business men—most of them executives, some salesmen—and their mental-test scores.[6] However, all 73 scored above the average of the general population; 83 per cent of them equalled the mental level of the ablest 12 per cent of the world war army draft, the grade which provided almost all the commissioned officers. One may question whether the criterion of estimated business success which was used is an accurate indicator of relative individual executive ability, and how far institutional success or other non-ability factors may have contributed to their rise. On the whole, the rather meager evidence we have does not contradict our hypothesis that successful executives have, and doubtless need, better than average mentality, especially if responsible for plan-making. But it also lends credibility to Bingham's assertion that, "the evidence in hand suggests that superiority in intelligence above a certain minimum contributes relatively less to business success than does superiority in several non-intellectual traits of personality," a generalization which does not contradict our four-fold hypothesis.

The third suggested qualification, demanded by the "directing" responsibility, is ability and inclination for social relationships. Traits of this type loom large in the Craig and Charters list of industrial leadership qualities.[7] They have been tested by several types of instrument, none of which, however, has attained the recognition by scientists that intelligence tests have. One is the so-called "social intelligence" type of test. Moss cites norms obtained with his George Washington University Social Intelligence

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[4] Yerkes, R. M., ed. "Psychological Examining in the United States Army." Washington: Superintendent of Documents, 1921. pp. 819-37. (Memoir XV of the National Academy of Sciences)
Fryer, D., "Occupational Intelligence Standards," *School and Society*, XVI (1922). pp. 273-77.

[5] Beckman, R. O., and Levine, Michael, "Selecting Executives: An Evaluation of Three Tests," *Personnel Journal*, April, 1930. pp. 415-20.

[6] Bingham, W. V., and Davis, W. T., "Intelligence Test Scores and Business Success," *Journal of Applied Psychology*, February, 1924. pp. 1-22.

[7] Craig, D. R., and Charters, W. W., "Personal Leadership in Industry." New York: McGraw-Hill Book Company, 1925. pp. 235-36.

Test, including those of 11 occupational groups, totaling 1,340 persons.[8] This scale, comprising six sub-tests, endeavors to get at such abilities as judgment of motives, recognition of faces and associated names, interpretation of facial expressions, and extent of social information. The highest scoring of the 11 groups is the 100 administrative and executive employees, followed in order by teachers, high-grade secretarial employees, and salesmen, while at the bottom of the list come the low-grade industrial workers, and a little above these the department-store sales-clerks. The Bureau of Public Personnel Administration has a similarly-titled test, extensively used in city and state civil service testing, and regarded by them as having considerable selective value. Hendry's Test of Social Information has been tried out on 128 students of a Young Men's Christian Association College and correlated with careful ratings of promise in the work of Y. M. C. A. secretary.[9] It yields a coefficient of +.36, not extraordinarily high, but statistically reliable and worth noticing.

A quite different type of test of social traits is found in the numerous extroversion-introversion tests.[10] With one of these, Freyd[11] found a difference in average scores between salesmanship and industrial students at Carnegie Institute of Technology which seemed to validate this as one differentiator of the "socially inclined" from the "mechanically inclined," and to lead to Bingham's consequent hypothesis, "Early introversion of personality leads to the development, through disproportionate exercise, of one's native interests in mechanisms or ideas, at the expense of interest and proficiency in social contacts."[12] In other words, the introvert, finding social relations uninspiring, if not actually uncomfortable, resorts to tools, books, or research as paths of escape; while the extrovert finds his joy in the active give and take of personal contacts. Laird, author of another scale, finds likewise that foremen and executives tend to be extroverts, and that inspectors, accountants and research engineers are, in general, introverts.[13] However, such tests do seem rather more clearly indicative of selling aptitude than of executive aptitude; and since the concepts of introversion and extroversion are so ambiguous, and the various tests intercorrelate so poorly, further analysis and experiment are needed before tests of this type can be accepted with confidence for this purpose.

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[8] Moss, F. A. "Applications of Psychology." New York: Houghton Mifflin Company, 1929. pp. 212-15.
Moss, F. A., "Preliminary Report of a Study of Social Intelligence and Executive Ability," *Public Personnel Studies*, January, 1931, pp. 2-9.

[9] Brighouse, G. "The Selection of Y. M. C. A. Secretaries." Unpublished Master's thesis on file in the library of the University of Chicago.

[10] Symonds, P. M. "Diagnosing Personality and Conduct." New York: Century Company, 1931. pp. 195-207.

[11] Freyd, Max, "Introverts and Extroverts," *Psychological Review*, XXXI (1924), pp. 74-87.
Freyd, Max. "The Personalities of the Socially and Mechanically Inclined." 1924. (Psychological Monographs, XXXIII, No. 151)

[12] Bingham, W. V., "Personality and Vocation," *British Journal of Psychology*, XVI, 1926, pp. 354-62.

[13] Laird, D. A., "How Personalities Are Formed in Industry," *Industrial Psychology*, I, 1926, pp. 654-62.

The fourth classification, like introversion, qualifies as a "trait" or "trait-group," rather than as an ability, and embraces a number of driving qualities, necessary if the abilities mentioned are to issue in overt action. Tests of these traits are comparatively recent, and not yet established as firmly as the older types of test. However, the general trait-concepts which they attempt to measure are old favorites with makers of rating-scales for executives. One of the first attempts to evolve a test of this kind was that of Moore and Gilliland, who devised a series of tricks which differentiated fairly well a small group of subjects picked as outstandingly aggressive from a group rated distinctly non-aggressive.[14] So far as I know, no practical employment use has been made of this test, although higher correlations are cited with measures of speech and selling ability than with intelligence and scholarship. This beginning was followed by a more practical development at the hands of F. H. Allport and G. W. Allport in their Ascendance-Submission reaction study,[15] while a parallel though slightly different form of paper-and-pencil scale has been published by Bernreuter.[16] Beckman and Levine, in the study previously mentioned, found a correlation of +.33 between the Allport A-S score and unofficial efficiency ratings; they found also a difference of 18 points between the more ascendant executives and the more submissive meter-readers, although exceptions spoiled somewhat the perfection of the picture. The Y. M. C. A. College study referred to gives somewhat similar results with this test, so far as promise-ratings on students are concerned, with a low positive correlation (+.21), but a rather more impressive and statistically reliable group difference between the most promising and least promising student groups. For secretaries in the field, however, the relationship, while positive, is too low to be significant; partly, perhaps, because of the less satisfactory criterion of success used on men in the field, and partly because, in this particular work individual differences in aggressiveness may well play a less significant rôle than in business.

Two other studies, not of business executives, seem nevertheless to have a bearing on our hypothesis. Wang's persistence questionnaire, containing 101 critically validated questions somewhat like those in the Allport and Bernreuter schedules, has been used to make some interesting differentiations.[17] One study concerned a group of the more promising freshmen, hand-picked on a basis of their records of leadership and achievement in high school, and a run-of-the-mine sampling of upper-classmen, the fresh-

[14] Gilliland, A. R., "A Revision and Some Results with the Moore-Gilliland Aggressiveness Test," *Journal of Applied Psychology*, X, 1926, pp. 143-50.
Moore, H. T., and Gilliland, A. R., "The Measurement of Aggressiveness," *Journal of Applied Psychology*, V, 1921, pp. 97-118.
Symonds, *op. cit.*, pp. 331-33.
[15] Allport, G. W., "A Test for Ascendance-Submission," *Journal of Abnormal and Social Psychology*, XXIII, 1928, pp. 118-36.
[16] Bernreuter, R. G. "The Personality Inventory." Stanford: Stanford University Press, 1931.
[17] Wang, C. K. A., "A Scale for Measuring Persistence," *Journal of Social Psychology*, III, 1932, pp. 79-90.

men showing a decidedly higher average persistence score. Perhaps this means they will furnish more than their normal quota of executives, a few years hence. The scale has also revealed a marked difference in persistence scores between salesmen and sales-supervisors in a large oil company, the supervisors having been selected for advancement from among the more successful salesmen. A second study, by W. H. Cowley, was concerned not with business executives, but with three groups of face to face leaders, namely, criminal leaders, non-commissioned military officers, and student leaders, each as compared with corresponding follower groups.[18] Twelve tests were used, yielding 27 distinct scores. Only six of the 27 traits were found to differentiate all three groups of leaders from their followers. Their nature is suggested by their titles: self-confidence, motor-impulsion, finality of judgment, and speed of decision (on three kinds of test material). Application of the Spearman formula revealed evidence of a common factor in these traits.

It would seem, then, that the experimental evidence shows our theoretical analysis to be not altogether wrong, and suggests that tests of these three or four major classes may very profitably be further experimented with, and improved toward this type of objective. An excellent example of what can be done is the item-analysis technique, by which Uhrbrock and Richardson eliminated as dead wood nearly 90 per cent of the 820 items in a battery of nine tests, and in so doing, raised the correlation with ratings from +.49 to +.71. Certainly, we are not yet ready to say that the problem has been solved. The diverse functions of different types of test and of test-items need to be more clearly recognized, both in the criteria of validation used, and in interpretations of individual scores and ratings. Particularly do we need better evidence of the power of these and other kinds of test-content to differentiate not merely executives from non-executives, but good executives from poor ones. Possibly the distinction between planning and directive functions might even be carried over more fully into administrative organization, undifferentiated "executives" being replaced, in certain cases, by engineers or experts who plan, and supervisors who oversee the execution of those plans, the two working together. It might prove easier to find successful exemplars of the two more specialized functions than of the combination. But while some production organizations tend to approach this differentiation, it need hardly be expected to prove a generally practicable expedient, especially in office organizations. Certainly, however, training courses for executives and foremen may profitably recognize this double function. Finally, whether or not tests in these two directions can be developed to a state of unquestioned success, they will probably never fully displace other selective devices, but will continue as supplements, amplifiers,

[18] Cowley, W. H., "The Traits of Face to Face Leaders," *Journal of Abnormal and Social Psychology*, XXVI, 1931, pp. 303-13.

and verifiers of other selective techniques, such as interviews, experience and achievement records, and personal estimates, opinions, and ratings, all, it is to be hoped, of the best types that critical research can devise.

Summary of Discussion

FOLLOWING Mr. Kingsbury's paper, Mr. R. S. Uhrbrock described the development of selective tests for supervisors in a large manufacturing company. Nine tests designed to measure general intelligence, interests, mechanical aptitude, and company information were given to 163 supervisors who directed the work of 2,100 persons. The tests contained 820 items, and required two periods of two hours each to administer. An answer was sought to the question, "Are there significant differences in the responses of 'best' and 'poorest' supervisors to the test material submitted to them?"

A criterion was developed, based on order of merit ratings, paired comparisons, and graphic rating-scale results. Each supervisor was rated by twelve superiors. The reliability of the criterion was +.80. On the basis of the ratings the supervisors were classified as "high," "medium," or "low." The validity of each test item was checked by the following procedure: The percentage who knew the item in each group was computed. This was facilitated by means of Hollerith cards on which criterion and all item responses were punched. A difference equal to at least three times the standard error was required for acceptance.

The following item was answered correctly by 30 per cent of the supervisors rated as "low," 52 per cent of the "medium," and 79 per cent of those rated as "high" supervisors:

F. O. B. is an abbreviation for the words:
———freight only billed.
———fill out blanks.
———free on board.
———favor of buyer.

This item fulfilled all of the requirements for selection as a "good" item, since it aided in differentiating between three known levels of supervisory ability.

The problem, therefore, was to analyze the effectiveness of each of the 820 items in the tests given to the supervisors, and to retain only those items which were marked correctly by the majority of the best men in the group, and failed by the poorest men. This study indicated one of the reasons why industrial testing programs have failed in the past. Unanalyzed tests may contain as much as 90 per cent "dead wood" so far as a particular industrial problem is concerned. Eighty-five items out of a total of 820 satisfied the requirements of this research. They were combined in a new test to be used in the future selection of supervisors, as an aid in the

discovery of new men with mental characteristics somewhat similar to those of the best of the present group. Mr. M. W. Richardson served as statistician in connection with this study.

Mr. Richardson described the process of developing tests for the selection of future salesmen in a large company. The problem included the construction of a test for the selection of routine line salesmen and another test for the discovery of development men for executive sales positions. No faith was placed in a predetermined list of traits. Instead, about sixteen hundred separate test items were presented to approximately seven hundred men whose positions ranged from that of junior salesman to sales supervisor. The test was divided into two parts, each four hours in length, for try-out upon salesmen in service. The data were gathered in twenty cities. The material was of the sort commonly alleged to measure mental alertness, social intelligence, introversion-extroversion, ascendance-submission, and business information. Selections from standardized tests were freely adapted and also supplemented by home-made items. Personal history data were also gathered.

The item analysis technique sounds much more formidable than it really is, according to Mr. Richardson. Approximately half of the time devoted to the study was spent in developing adequate criteria against which the effectiveness of each item was to be measured. A rating scale was prepared and validated in use. Its reliability was +.80. Paired ratings also were used. The percentage of the quota sold and the percentage cost of stock was considered in developing the criteria. An attempt was made to estimate the salesman's adjustment to his job. This estimate grew out of the salesman's actual record and was based to some degree upon a study of the demands he had made upon the pension and benefit plan of the company. A questionnaire was sent to the salesman's supervisors regarding his job adjustment and a free running description as to his functioning on the job was obtained from each supervisor and sales manager. Finally, the promotional capacity of the man was estimated according to whether or not he was included in the list of development men which had grown out of the recommendation of superiors.

Each test item was checked against every criterion element. To be classed as good an item would have to give statistically reliable differences when evaluated against the criterion elements. The test data on routine salesmen yielded 11 per cent good items; the test data on development men yielded 16 per cent good items.

Mr. Paul Horst, who also assisted in developing the tests for salesmen, explained that the men were divided into two statistically comparable groups so that more items could be tested. Formulas were developed for combining the norms of the two groups. Mr. Horst pointed out that, although the test requires from one hour to one hour and thirty minutes to take, the

person administering the test is free to go about his own work during this time, since no definite time limits are set for the test.

He demonstrated the stencils which were developed for scoring the test for routine line salesmen, indicating that the total scoring time is less than two minutes per test. A procedure was developed for converting raw scores to index scores, having a mean of 100 and a standard deviation of 20.

A chart was presented which indicated that of the salesmen making an index of 125 or more on the test for routine line salesmen, 75 per cent were rated as above average salesmen, while of those making an index below 75, only 16 per cent were rated above average. In connection with the test for the discovery of development men, another chart was presented which indicated that of those salesmen scheduled for the highest grade of executive sales positions, 80 per cent made an index of 100 or more, while of the group not considered as development material, only 10 per cent made an index of 100 or more.

Mr. R. F. Lovett discussed the selecting of salesmen and also described a study of office employees begun in 1925. Later, the members of the buying department and general office groups were included so that methods of selection in the sales department of the company were improved. Marked reduction in turnover resulted. Improvement in mental alertness scores in groups hired in successive years also was reported. "This improvement in quality of men employed will tend to make present tests obsolete so that it will be necessary to construct new tests after a period of years," Mr. Lovett concluded.

The question was raised as to whether applicants anxious for jobs will respond to personality items included in the tests as frankly as employees who took the tests experimentally. Mr. Richardson replied that there is a possibility of "faking" these tests, but that, since the tests are made as long as possible, fairly reliable results may be anticipated. The final answer to this question depends upon further investigation and experience with these tests.

Mr. Arthur W. Kornhauser introduced a fifth item for consideration in connection with Mr. Kingsbury's list. He suggested that there be evolved a technique for attacking problems, such as statistical and accounting procedures, and a psychological approach to problems.

Mr. I. O. Royse, Manager of Office Production, The Ralston Purina Company, asked if the experience of other companies could be utilized in adapting tests for specific needs. It was the opinion of the group that each company eventually must face the problem of constructing its own tests and validating them upon the experience of its employees.

A note of humor was introduced at the close of this round table when Mr. Mark L. Putnam, of the Western Electric Company, rose to inquire what the effect of such scientific selection procedures would be in so far as the unusual individual, who did not fall within the classifications indicated,

was concerned. He cited the case of the ungainly racer, Plow Horse, that achieved fame on the dirt tracks of Kansas. In appearance Plow Horse violated all of the specifications usually considered in selecting fast running horses. Of vital importance, however, was his ability to come in ahead in any race in which he was entered. Mr. Putnam raised the question as to whether the tests that had been described would measure the dynamic qualities of the unusual executive whose success was founded upon excellent experience, judgment, and insight. This Gestalt approach to the problem raises questions that cannot be answered at the present stage of development of mental-test technique. In reply, Mr. H. B. Bergen stated that in the long run it probably is desirable to set up selection standards that will improve the quality of the group under consideration, even though an exceptionally outstanding individual, to whom the general rule may not apply, is occasionally lost through the process.

Reported by R. S. UHRBROCK.

Executive Salary Administration*

By C. R. DOOLEY, *Personnel Manager,*
Socony-Vacuum Corporation

The Basis of a Salary Plan

A PLAN for executive salary administration should not begin with a discussion of salaries. Instead, we should begin with a thorough analysis and evaluation of an executive's duties and responsibilities, and the matter of his salary develops naturally from that. We are not aiming toward rigidity in compensation for executives, but toward conformity between basic salaries to be paid for comparable executive work—a conformity which is both logical and fair.

Analyzing Executive Work

There is no desire, however, to standardize executive ability, which is essentially a matter of personal qualifications—indeed, there is every desire to preserve and protect the executive's individuality. We can, however, analyze, compare and evaluate executive positions. The basis of such evaluation is a job analysis. Essentially it is the same sort of analysis as that applied to the rank and file, although certain additional factors may have to be considered, or certain ones stressed, when analyzing executive positions. Some factors to be considered when making such an evaluation are:

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* Presented at the Round Table Meeting on Executive Salary Administration, held during the A. M. A. Personnel Conference at the Palmer House, Chicago, Feb. 8, 1933. Discussion at this session was led by Mr. Dooley.

Rank
Duties
Responsibilities
Relationships
Degree of authority
Scope of work and territory
Number of people supervised.

A comparison and regulation of executive salaries comes from such analysis and evaluation of executive duties and responsibilities.

Fundamentals of an Analysis

A brief outline of the fundamentals of a typical job analysis is as follows:

Description of Position

A simple but detailed description of his work is obtained from each person, thus insuring his point of view.

This description is read and approved by the supervisor or head.

Analysis of Position

The position description is then reviewed, and a tentative evaluation made.

Following are some items which can be considered in this review, but other items may be substituted if desired:

Difficulty of work
Volume of work
Responsibility involved
Supervision of others
Knowledge, training and experience required.

Evaluation of Position

Next comes the evaluation or grouping of the position:

First, with regard to other positions in the same department or division of the organization;

Second, with regard to comparable positions in other departments or divisions.

Furthermore, the evaluation is made not only by a representative of the personnel department, but by the supervisor of the executive—or other employee—under consideration. Thus it is a consensus of opinion agreed to by the management, and not just one person's judgment.

One satisfactory method of evaluating positions is to line them up in columns or groups so that positions of the same weight or value, even though they concern radically different work, fall in line. Executive positions can be valued in this way along with those of a routine nature, higher positions being placed naturally in the higher groups.

Analyzing Executive Salaries

After positions have been evaluated as outlined above, group salary limits are determined, based upon salaries paid for positions in that group. Thus an executive salary can readily be compared with those paid to other executives in the same group.

In considering salary, years of service are also considered, such service explaining why one salary may be somewhat higher than another. Special qualifications and circumstances are also taken into consideration. However, while the salary of one person in a group may be higher than that of another, it must not exceed the maximum limit set for that group.

The outstanding points to be kept in mind, then, in reviewing positions and salaries, whether executive or not, are:

1. Duties attached to the position.
2. The value of the position according to certain fixed factors—value in terms of the job.
3. Its value as determined by conference.
4. Salary limits set according to actual salaries paid.

It should be emphasized that such an analysis of executive duties and responsibilities, and the subsequent comparison and regulation of salaries, do not lessen the dignity of executive work. On the contrary this analysis results in greater fairness to the executive, and greater appreciation and understanding of the scope and dimensions of his work as well as of the details of his position, and keeps similar jobs in different departments in line.

There is no reason why one division general manager, or one department head, should receive a salary a third or more higher than another, if the size of the territory supervised, the number of people under him, and his difficulties and responsibilities are comparable to those of the other man. These factors can be determined through job analysis to a remarkably exact and just degree.

Furthermore, the analysis and the ensuing salary limits can be broad enough to allow for recognition of individual merit and qualifications. Regulation of executive salaries need relate to basic comparison only, and there is no reason why exceptional executive ability cannot be rewarded by additional compensation, such as a bonus or other incentive.

Another point is that job analysis facilitates and strengthens a policy of promotion according to training and experience by making clear the relation of one position to another. In this way it is possible, when an executive opening does occur, to fill it with someone whose previous work has particularly fitted him for it. Thus an analysis tends to do away with the favoritism and politics which in the past have figured far too much in executive appointments and promotions, to the very great detriment—indeed to the actual failure—of many companies.

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(*Continued from second page*)

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